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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,766	07/19/2004	Yoshiko Saito	L9289.04148	3009
24257	7590	10/19/2006	EXAMINER MATIN, NURUL M	
STEVENS DAVIS MILLER & MOSHER, LLP 1615 L STREET, NW SUITE 850 WASHINGTON, DC 20036			ART UNIT 2635	PAPER NUMBER

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/501,766	<b>Applicant(s)</b> SAITO, YOSHIKO	
	<b>Examiner</b> Nurul M. Matin	<b>Art Unit</b> 2635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

VU LE  
**SUPERVISORY PATENT EXAMINER**

**Attachment(s)**

- |  |  |
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| <p>1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br/>Paper No(s)/Mail Date ____.</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)<br/>Paper No(s)/Mail Date. ____.</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application</p> <p>6) <input type="checkbox"/> Other: ____.</p> |
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## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 7 is objected to because of the following informalities:

Claim 7, paragraph 5 should be written "a generator" not a generation.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being unpatentable over Koch, US 5199047.

Re claim 1, Koch teaches a data receiving apparatus (fig. 3) comprising: an estimator (24) that estimates characteristics of a propagation path (col. 7, line 12-29); a calculator that calculates a likelihood of a received signal based on the propagation path characteristics estimated by the estimator (col. 8, line 50-57, i.e. a reliability information is a measure of probability); an equalization processor (25) that performs equalization processing upon the received signal (col. 8, line 27); and a generator that generates soft decision data based on the likelihood calculated by the calculator and an

output of the equalization processor (col. 8, line 65-68, " when standardizing the reliability information  $L(b'_i)$  at "S" (the estimate), the reliability of the channel decoding in so-called soft decision decoding is considerably enhanced.

Re claim 2, the data receiving apparatus according to claim 1, wherein the likelihood is a reception quality (col.8, 50-57, the reliability measure is to compare with the quality of the received signal).

Re claim 3, The data receiving apparatus according to claim 1, wherein the received signal comprises a plurality of slots each containing a known signal (fig. 4, col. 3, line 31-46, " as a signal frame having eight time slots 0, . . . , 7. A time slot may contain a so-called normal burst, a frequency correction burst, a synchronization burst or an access burst. For example, in fig 3, shows that burst has 148 bits"); wherein the estimator estimates an impulse response on a per slot basis using the known signal contained in each slot of the received signal; wherein the calculator calculates the likelihood on a per slot basis based on the impulse response (col. 2, line 36-47, col. 5, line 57-62, where it says, when assuming that the channel impulse response is constant within a time slot, it is permissible to use the estimate S also as an estimate for the remaining sample values of the received signal of a time slot.; and wherein the generator generates the soft decision data based on the likelihood calculated by the calculator on a

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per slot basis and the output of the equalization processor( col. 8, line 52-57, line 65-68, where in the reliability information  $L(b'.sub.i)$  is a measure for the probability with which the equalizer has decided on each data symbol ( $b'.sub.i$ ). By forming a relative value from this reliability information  $L(b'.sub.i)$  and from each estimate  $S$  of a time slot, the decision of the equalizer is estimated together with the quality factor of the received signal”).

Re claim 4, The data receiving apparatus according to claim 3, wherein the likelihood is a power ratio of the impulse response to an error power between a replica of the received signal and the received signal acquired using the impulse response, in a known signal interval (col.7, line 15-29, 34-41, i.e., channel impulse response  $H_a(0)$ . Also, the signal from which a better replica of the originally transmitted data i.e. replica of the received signal sequence can be expected when compared to the other received signal. These two signals are not be equalized completely as, for example, would be the case if for each receive loop a bit error rate were recovered from the completely processed signal).

Re claim 5, which claim the same subject matter as recited in claim 3, except for the addition of “a plurality word” as claimed. However, Koch teaches the same. For example, in col. 7, line 38, says “these signals” (means plurality signals) and also in col. 1, line 29, says “transmitted data

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symbols" which can be interpreted as a plurality of impulse responses.

Thus, claim 5 have been analyzed and rejected with respect to claim 3.

Re claim 6, which claim the same subject matter as recited in claim 4.

Thus, claim 6 have been analyzed and rejected with respect to claim 4.

Re claim 7, which is rejected for the same analysis as set forth in claim 1.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Piirainen pertains to the equalizer with a cost function taking into account noise energy;
- b. Baldwin pertains to the intelligent control system and method for compensation application in a wireless communications system;
- c. Uesugi et al pertains to the data transmission apparatus;

### ***Contact***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nurul M. Matin whose telephone number is 571-270-1188. The examiner can normally be reached on mon-fri (7:30-5:00).

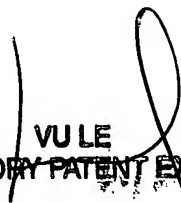
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vu Le can be reached on 571-272-7332. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nurul Matin

  
**VU LE**  
**SUPERVISORY PATENT EXAMINER**